TDWG Report

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5/30/01

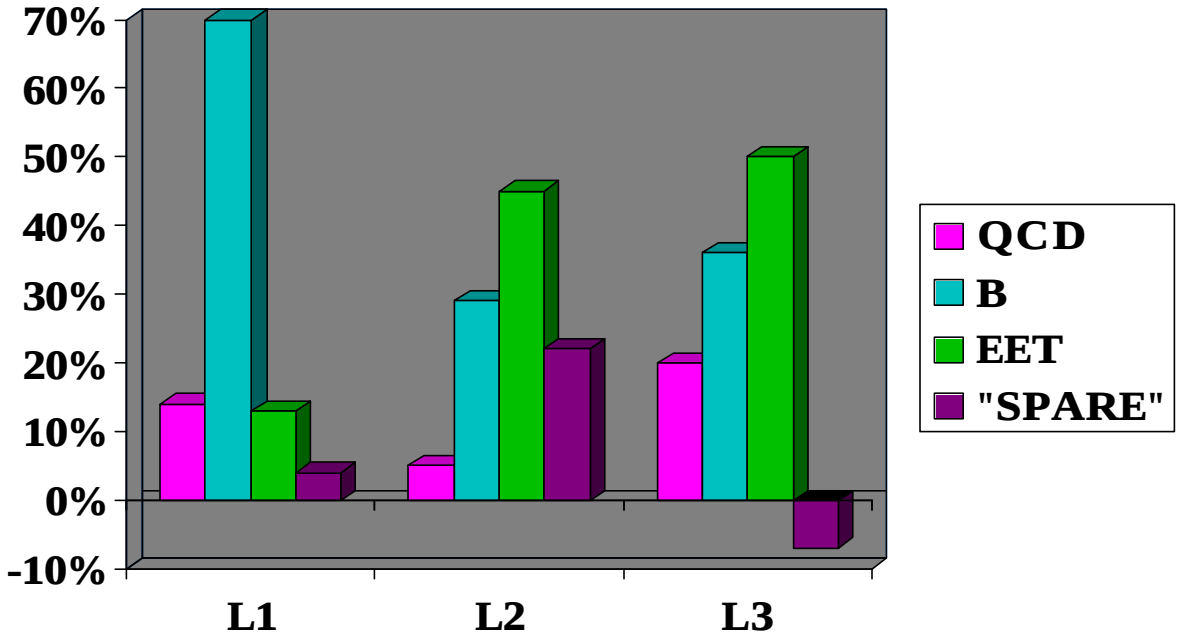
(This talk is on physics-run planning. Most work this quarter done on commissioing—see JDL's talk.)

Physics Table

- Plans documented in CDFNOTE-4718
  - definitions of primitives
  - trigger rates vs. physics efficiency (42 data paths)
  - contingency plans
  - budget hardware threshold allocation
- Nearly all triggers /datasets in place.
  - Depends on timescale for some electronics
  - L3 rates are a bit uncertain—need real data

Distribution of Physics X sect

- These are *shared* by different groups, but according to "nominal" user:



- Some uncertainty on projections.

TRIGSIM++ status

- Leader: Simona Rolli
  - full emulation of digital trigger
  - produce trigger banks based on readout of D banks
- Important online monitoring tool for running
- Code:
  - CALtrigger,XFTsim,XTRPsim,SVTsim, XCESsim,L1global, L2global
  - some still for experts only—debugging ongoing
  - can now adjust the tcl file online for trgsim inside trigmon
  - New trigger bank accessors being developed (not just get_word) since there is a problem with empty slots
- Built every night in development

H.L.O.

- Convenors: Henry Frisch, Rick St. Denis
- Development of “good run” list (CDF-5613)
  - Henry, Rick St.D., Tony Vaiciulis
- Continue offline users’ document (CDF-5543)
- Development of Standard Ntuple.

L3 Output Streams specified

- Thx to Bruce Knuteson, Mel Shochet: 8 streams CDF-5565
- Based on original specs by Liz Buckley but updated given firmer Run-II DH plans & specs CDF-4718.
- Guidelines:
  - minimize overlap
  - match dataset sizes within a stream (for PAD streaming)
  - keep like with like for reprocessing
  - * NEW* minimize total number of PAD streams (so some PAD datasets are merged into same production output stream– still different filenames, but same set of PAD tapes)

Datasets & PAD streams

stream	dataset	(nb)	PADtape
2	High-E_T central e	25	2
	High-E_T central μ	8	3
	High-E_T e + jets	(?) 3	4
	High-E_T μ + jets	(?) 3	4
	W/Z + Higgs	1	4
	$Z \to b\bar{b}$	3	4
	PEM + $\not\!\!E_T$	10	5
	$t\bar{t} \to$ jets	5	5
3	High-E_T isolated photon	29	6
	Ultra-high-E_T photon	4	7
	High-E_T photon w/o isolation	1	7
	Low-E_T photon	1	7
	High-E_T di-photon w/o isolation	8	7
	Low-E_T isolated di-photon	3	7
4	Di-τ	5	8
	τ + $\not\!\!E_T$	5	8
	e or μ + isolated track	9	8
	e + track (no e isolation)	0.2	8
	ee, eμ, $\mu\mu$	47	9
5	Zero-bias	10	10
	Diffraction	23	11
6	$\not\!\!E_T$ + 2 jets	30	12
	Inclusive $\not\!\!E_T$	5	13
	$\not\!\!E_T$ + 2 b-tags	3	13
	High-P_T b-jet	41	14

STREAM	DATASET	L3 σ (nb)	PAD TAPE
7	Single-tower 5	5	15
	Jet-20	16	15
	Jet-50	9	16
	Jet-70	6	16
	Jet-100	14	17
	Dijet mass (jet-20)	0.2	18
	Dijet mass (jet-50)	0.5	18
	Dijet mass (jet-70)	0.5	18
	Dijet mass (jet-100)	0.5	18
8	$B \to \pi\pi$	8	19
	$B_s \to D_s\pi$	10	19
	Lepton + displaced track	50	20
9	$J/\psi \to ee$	6	21
	Radiative B	6	21
	$J/\psi \to \mu\mu$	5	21
	More $J/\psi \to \mu\mu$	10	21
	$\Upsilon \to ee$	(?) small	22
	$\Upsilon \to \mu\mu$	(?) small	22
	$\gamma + \mu$	5	22

stream 1---next slide

Expressline Defined (stream 1)

- Thx to Henry, Dave Toback, Nancy Lai (and offline/DH groups for working to define final configuration)– CDFNOTE -5622

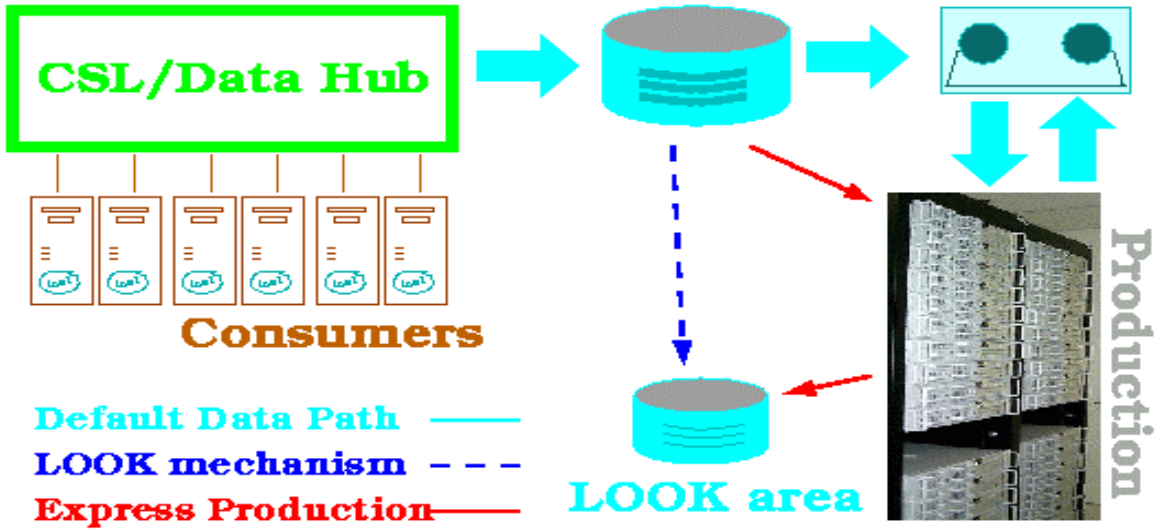


diagram from Kevin McF.

- Feeds Physmon, Objectmon online
- Used for rapid analysis of data for analysis-level monitoring (~ hours), whatever constants are ready

Express stream (defined at 10^{31}) CDF-5622

- All events in express are also in another stream
- Hi-p_T or heavily prescaled samples:
  - zero-bias, minbias, xft_4
  - jet_##, dijets, sumet
  - photons,no-track W/Z
  - incl electrons, muons
  - J/ψ ($\rightarrow\mu\mu$ and $\rightarrow$ee)
  - MET
  - Z$\rightarrow$bb
- Yields 1.2 Hz at 10^{31} .
- Prune cross sections to keep rate 1-2 Hz.

Commissioning → Physics Propsosal (Plan?)

- "Physics table" is much more complex than what is needed for commissioning
- "Physics table" will need debugging beyond what is tested in comm. run.
- Streaming is not the same as in comm. run
- Can we run the "physics table" for the last two hours of every store?...
  - ➢ debugs downloading and inconsistencies
  - ➢ early idea of the real rates
  - ➢ makes it clear what is *really* working vs. what's not.
  - ➢ debug L3 filters
- Need to augment table-writing team?